

Application for Letters Patent of

the UNITED STATES OF AMERICA by –

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Being citizens of –

THE UNITED STATES OF AMERICA

For:

LOAD TERMINAL COVER

Customer No.: 23569

LOAD TERMINAL COVER

CROSS-REFERENCE TO RELATED PATENTS

5 **[0001]** Not applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable

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FIELD OF THE INVENTION

[0003] The present invention relates to molded case circuit breakers, and particularly to a load terminal cover for molded case circuit breakers.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

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Figure 1 illustrates a typical multi-phase molded case circuit breaker and a load terminal cover assembly constructed in accordance with the present invention.

Figure 2 is an isometric view of load terminal cover constructed in accordance with the present invention.

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Figure 3 is an isometric view illustrating the load terminal cover of Figure 2 installed on the circuit breaker of Figure 1.

Figure 4 is a cross-sectional view of one embodiment of the load terminal cover attachment feature.

5 Before one embodiment of the invention is explained in detail, it is to be understood that the invention is not limited in its application to the details of construction described herein or as illustrated in the drawings. The invention is capable of other embodiments and of being practiced or being carried out in various other ways. Further, it is to be understood that the phraseology and
10 terminology used herein is for the purpose of description and should not be regarded as limiting.

DETAILED DESCRIPTION OF THE DRAWINGS

[0005] Figure 1 illustrates a typical multi-phase molded case circuit
15 breaker, generally indicated by reference numeral **10**. The circuit breaker **10** includes a load end **14** in which the circuit breaker's load terminals **18** are located. Binding screw access apertures **22**, which provide access to the load terminal binding screws **26**, are defined in a top surface **30** of the circuit breaker **10** at the load end **14**. The circuit breaker **10** also has a bottom surface **34**,
20 which is generally parallel to the top surface **30**, and a load end wall **38** that extends between the top and bottom surfaces, **30** and **34**, respectively. The load end wall **38** defines load terminal apertures **42** for receiving the load terminals **18**. The load end **14** of the molded case circuit breaker **10** also includes apertures **46** for mounting hardware, such as screws (not shown), which secures
25 the circuit breaker **10** in a panelboard, switchboard, load center or other electrical enclosure (not shown). A load terminal cover constructed in accordance with the present invention is illustrated generally by reference numeral **50**.

[0006] Figure 2 illustrates, in greater detail, the circuit breaker load terminal cover **50**, constructed in accordance with the present invention. Each

load terminal cover **50** includes an end wall **54**, a top flange **58** and at least one bottom flange **62**. The end wall **54** is dimensioned to cover the load end wall **38** of circuit breaker **10** and is intermediate the top and bottom flanges, **58** and **62**,
5 respectively. The end wall **54** defines at least one knockout **66** for each load terminal **18**. The knockouts **66** can be of one predetermined diameter for a single load conductor **70** (Figure 3) or have a number of tangential or concentric diameters, each of increasing diameter for a larger size load conductor **70** or multiple load conductors **70**. The knockouts **66** are removed when the circuit
10 breaker **10** is activated. The end wall **54** can also define electrical clearance features **74** such as a slot, groove, or rib, which provides the required over surface electrical clearance between adjacent electrical phases of different polarity. The top flange **58** is dimensioned to cover that part of the circuit breaker top surface **30** defining the binding screw access apertures **22**. The top flange
15 **58** defines at least one integrally formed attaching member **78**, which terminates at a distal end **82**, and one non-removable load terminal binding screw access cover **86** for each binding screw access aperture **22** of the circuit breaker **10**. The load terminal binding screw access cover **86** is integrally attached to the top flange **58** by two pivot arms **90**. In its normal position, each load terminal binding
20 screw access cover **86** covers one binding screw access aperture **22** in the top surface **30** of circuit breaker **10**. The load terminal binding screw access cover **86** is rotated upward or downward (see Figure 3) to permit access to the load terminal binding screw **26**. The load terminal binding screw access cover **86** is dimensioned to be slightly smaller than the binding screw access aperture **22**,
25 and is shaped to generally conform with the shape of the binding screw access aperture **22**. The bottom flange **62** also defines at least one integrally formed attaching member **94**, which terminates at a distal end **98**. The top and bottom flanges, **58** and **62** respectively, are approximately parallel to one another and configured to snugly slide over the top and bottom surfaces, **30** and **34**,
30 respectively, of the circuit breaker **10**. In one embodiment, the attaching members **78** and **94** can be configured in the same manner such that the distal

ends **82** and **98** are angled inwardly toward each other. In this configuration, the distance between the two distal ends **82** and **98** is less than the distance between the top and bottom flanges, **58** and **62**, respectively. In another
5 embodiment, one of the attaching members **78** or **94** can be configured as a hook **102** (Figure 1). The attaching members **78** and **94** are positioned on the top and bottom flanges, **58** and **62**, respectively, for engaging features defined in the top and bottom surfaces, **30** and **34**, respectively, of the circuit breaker **10**. It is to be understood that the features to be engaged can be existing features that
10 originally were provided for other functions, thus permitting the installation of terminal covers **50** on older circuit breakers **10**. For instance, in the first embodiment, the distal end **82** of attaching member **78** can engage the aperture **50** of the circuit breaker top surface **30** while the distal end **98** of attaching member **94** can engage an aperture, groove or similar recess defined in the
15 bottom surface **34** of circuit breaker **10**. As shown in the cross-sectional view of Figure 4, the angle of the attaching member **78** is such that an attempt to slidably remove the load terminal cover **50** from the circuit breaker **10** causes the distal end **82** to further penetrate the aperture **46**, thereby increasing the resistance to removal. The hook-like feature **102** of the second embodiment can engage a
20 protruding feature (not shown) on the bottom surface **34** of the circuit breaker **10**.

[0007] It is to be understood that, although the description has been written in terms of a load terminal cover **50**, in many molded case circuit breakers **10**, the line end **106** (Figure 1) is configured in the same manner as the load end **14**. Therefore, the load terminal cover **50**, as described herein, can be also be
25 used on the line end **106**.